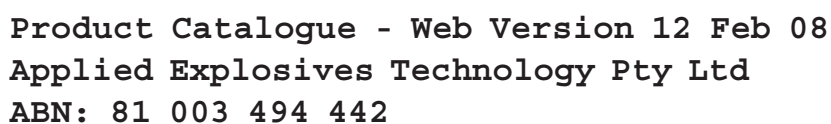


# Product Catalogue



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## BACKGROUND

Applied Explosives Technology (AET) was established in 1988 to provide explosive and pyrotechnic products and services to the following industries.

- Oil and Gas (on and offshore)
- Mining (Underground hard rock)
- Defence
- Film & Television

Since 1993 Orica Explosives (formerly ICI Explosives) has been responsible for distributing certain AET mining explosives products throughout Australasia/Oceania/Asia.

## PRODUCTS

Offshore/Onshore oil and gas

Underwater focussed cutting charges designed for cutting plate, tubular members and mooring components.

Focussed or shaped charges produce a more reliable and cleaner cut with a lower explosive loading than alternative explosive methods. The charges are designed for placement by divers, remote operated vehicle (ROV) or atmospheric suited diver.

Charges can be used to 200 m water depth, and are custom designed and fabricated for each project. Up to 75mm (3 inch) steel thicknesses can be cut with charge access from one side only. Up to 6" mooring chain can be cut with opposed dual charge, clamp type unit.

Flexible flow lines, 6" Oil, 2" Oil & Gas and Umbilical can also be cleanly severed with AET charges.

AET also manufacture WS series wellhead severance charges in diameters suitable for shotcan insertion into 7inch and 20 inch casing.

## MINING AND INDUSTRIAL

BD series Ballistic Discs - used for breaking up hang ups and upstanding rill in underground hard rock mines. These products are laser aimed and produce a hypersonic explosively generated fragment (2000-2600 m/sec velocity) that accurately impacts targets at ranges out to 100m. The kinetic energy generated on impact is very substantial; the following units are manufactured by AET:-

BD 260:- 7Kg NEQ, 2.2 Kg Fragment, 7- 8 Mj impact energy  
BD 318:- 11.5 Kg NEQ, 6 Kg Fragment, 12 -15 Mj impact energy  
BD 514:- 39Kg NEQ, 32 Kg Fragment , 60 Mj impact energy

AET also produces variety of shaped charges for secondary rock breaking, demolition and special purposes, including several ranges of linear shaped charge to cut 5 - 100 mm mild steel, above & sub sea.

AET assemble, fill and pack, operations are conducted at the

Quin facility in Gladstone, South Australia. Composition B, H6, Torpex and HBX cast compositions can be supplied to order. PBX compositions may be offered in the near future.

Quality Assessment Services and Quality Auditing to ISO 9001 are provided by CSS Pty. Ltd. for all AET products when required. CSS is a Quality Assessed Defence supplier, accredited in 1995

## DEFENCE PRODUCTS

AET manufactures DSTO "Zipper", "Plastic" and "Ausdisc" EOD shaped charges to order from JALO, as well as Charge, Shaped, Demolition, 150mm for ADF.

We have also fabricated specialised research shaped charges for Land Engineering Agency, and provide Right Cylindrical and Spherical Comp. B charges for AMRL (Maritime Platforms Division). AET Ballistic Discs are from time to time purchased from distributors for ADF.

AET can offer various cast fills for shaped charges and offer defence explosives applications as well as PETN / RDX / Silicone PBX fills (XTX 8003 / 8004).

## PYROTECHNICS

AET provides ISO 9000 standard zirconium base igniters for initiating dust explosions in ISO 6184/1 - 1985 E standard dust explosion chambers, used by Government Authorities world wide for assessment of hazards associated with industrial, mining and agriculturally generated dusts. Both 1 & 5 Kj output units are provided.

AET also provides various specialised pyrotechnics for the film and television industries.

## SERVICES

AET provides a range of services to industries involved in the manufacture or use of explosives.

- Preparation of explosive use procedures and job safety analyses.
- Preparation of risk analysis and hazard identification reports for operations involving the use of explosives.
- On site training and supervision of explosives operations.
- Predictive calculations including underwater pressure pulse, ground vibration and air over pressure effects.
- Product Research and Development for Industry and Government.
- Trials and testing of new explosive products and provision of comprehensive performance reports.

## PERSONNEL

AET personnel have extensive knowledge and experience in their respective fields. Mining, Industrial and Defence products are developed by personnel with over 30 years of explosives industry experience.

Offshore products are designed and developed by personnel with over 10 years focal charge and 8 years international and regional offshore oil and gas engineering experience.

All AET personnel involved with on site training or supervision of explosive operations hold the relevant explosives use certifications required in each State and Territory.

## SAFETY

Specialised explosives use can, in many instances, enhance the safety of an operation, on or offshore.

- Explosive cutting or severance devices can be placed rapidly by divers, reducing dive time on the job. Personnel and equipment are located at a safe distance when the cut is performed.

- Explosive cutting or severance devices may often be emplaced remotely, by ROV

- Other cutting and severance methods, eg. Mechanical, water jet, gas or thermal lance require personnel to remain in proximity to the cut, risking injury or equipment damage as the cut nears completion.

- Ballistic Disc use in underground mining allows a "non stope entry" method of removing hang ups and upstanding rill masses, thus enhancing safe operations underground. AET Ballistic Discs are mandatory in hang up clearance in many Australian mines.

- AET provides detailed instructions and procedures for the safe use of specialist products. For complex operations such as underwater explosive cutting, AET provide Explosives Supervisors to train divers in correct placement techniques and also to supervise blasting operations that utilise AET products.

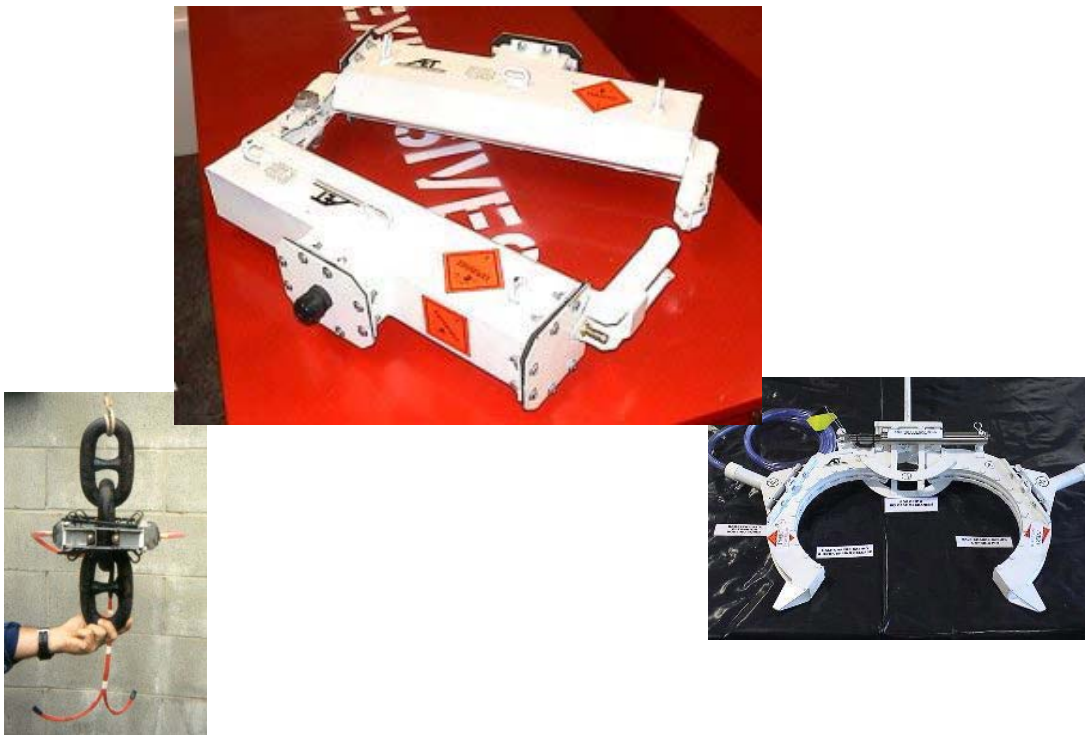
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AET designs and manufactures wellhead severance charges and underwater focussed cutting charges for cutting plate, tubular members and mooring components. Focussed, or shaped charges, produce a more reliable and cleaner cut, with a lower explosive loading than alternative explosive methods.

Charges can be used down to 200m depth, and are custom designed and fabricated for each project. Charges can be designed for placement by either divers or remote op-

erated vehicle (ROV). Up to 75mm (3 inch) steel can be cut with charge access from one side only. Up to 150mm (6 inch) mooring chain can be cut with opposed dual charges in a clamp-type unit. Flexible flow lines, 6" oil, 2" oil & gas and umbilical lines can also be cleanly severed by AET charges.

AET also manufacture a series of wellhead severance, WS, charges in diameters suitable for shotcan insertion into 7 and 20 inch casings.



# Ballistic Disc 260 [BD 260]

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## DESCRIPTION

Ballistic Disc 260 (BD260) provides a safe and effective way of clearing hang ups and pillars in draw points of stope remotely.

BD 260 comprises 6.9 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a steel disc.

When detonated, the BD 260 produces a large steel slug that is propelled at high velocity in the direction aimed. The slug impact is approximately 8mj to 9mj energy and is accurate to a least 60 metres.

A free fired BD 260 could result in the slug traveling more than 5 kilometres.

A twenty-six gram PETN/Wax pellet provides a cap sensitive booster. A Detonating Cord Assembly is provided for safe and convenient attachment of users preferred initiation system.

## SAFETY

When the BD 260 used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosive produces a considerable and extensive air-blast.

If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards, the following precautionary measures should be taken.

- Transport BD 260 in the original packaging with the steel discs opposed.
- Do not transport with detonators.
- Leave any doors/shafts open to permit dissipation of the air shock wave.
- When setting the BD 260 make sure it is in a stable position. If the charge is moved after aiming, the slug will be misdirected with potentially disastrous results.
- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.
- Ensure the Detonating Cord Assembly is correctly inserted into the charge. An incorrectly primed charge will result in a malformed, aerodynamically unstable slug that will travel in an unpredictable direction.
- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet problems and damage to non-target areas.
- After aiming, make sure that aiming device is removed

and there are no obstructions along the aim line between the disc and the target rock or area.

- Clear the area before firing making sure the personnel will not be exposed to the air-blast.
- Toxic fumes are generated on detonation of the BD 260.
- Allow sufficient time for fumes to disperse before entering the blast area.

BD 260 contains 6.9 kilograms of RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions, ie. wetdowns, insert dustbag placement etc.

## RECOMMENDATIONS FOR USE, SET-UP PROCEDURE

1. Remove Detonating Cord Assembly protective foam tube and unpack.
2. The Detonating Cord Assembly comprises of a length of UEE 20g/m detonating cord with an aluminium sleeve crimped over one end. This aluminium sleeve is not a detonator. Treat UEE 20g/m as per manufacturer instructions.
3. Mount the BD 260 in sandbags or other suitable cradle with the steel concave disc pointed at the intended target rock. Ensure there is a direct line of sight from the position of the BD 260 to the intended rock.
4. Remove red plastic end cap from rear plastic housing on BD 260. Make sure plastic housing remains free from dirt and grit.
5. Insert aluminium sleeve carefully into the rear plastic housing, ensuring that when fully seated only the aluminium sleeve is visible. Do not tamper with the plastic over-cap or abuse in any way.
6. Fix the Detonating Cord Assembly to electric or non-electric initiating system.
7. Attach Laser Aiming Device (recommended), or alternate sighting mechanism.
8. Sight in the BD 260 making sure there is no obstruction at all in the path of the ballistic projectile. The resulting slug will strike where aimed.
9. Remove the aiming device without disturbing the position of the BD 260.
10. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

# Ballistic Disc 260 [BD 260]

## TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	257mm
Net Explosive Weight	6.9kg
Gross Weight	9.2kg
PROPERTIES	
Main Explosive	RDX/TNT
Impact Energy	8 - 9 mj
Accuracy	60 metres

## PACKAGING

- The BD 260 is packed in fibreboard boxes with dimensions of 260mm x 260mm x 388mm.
- There are two charge units per box.
- Gross box weight is approx 21.0kg

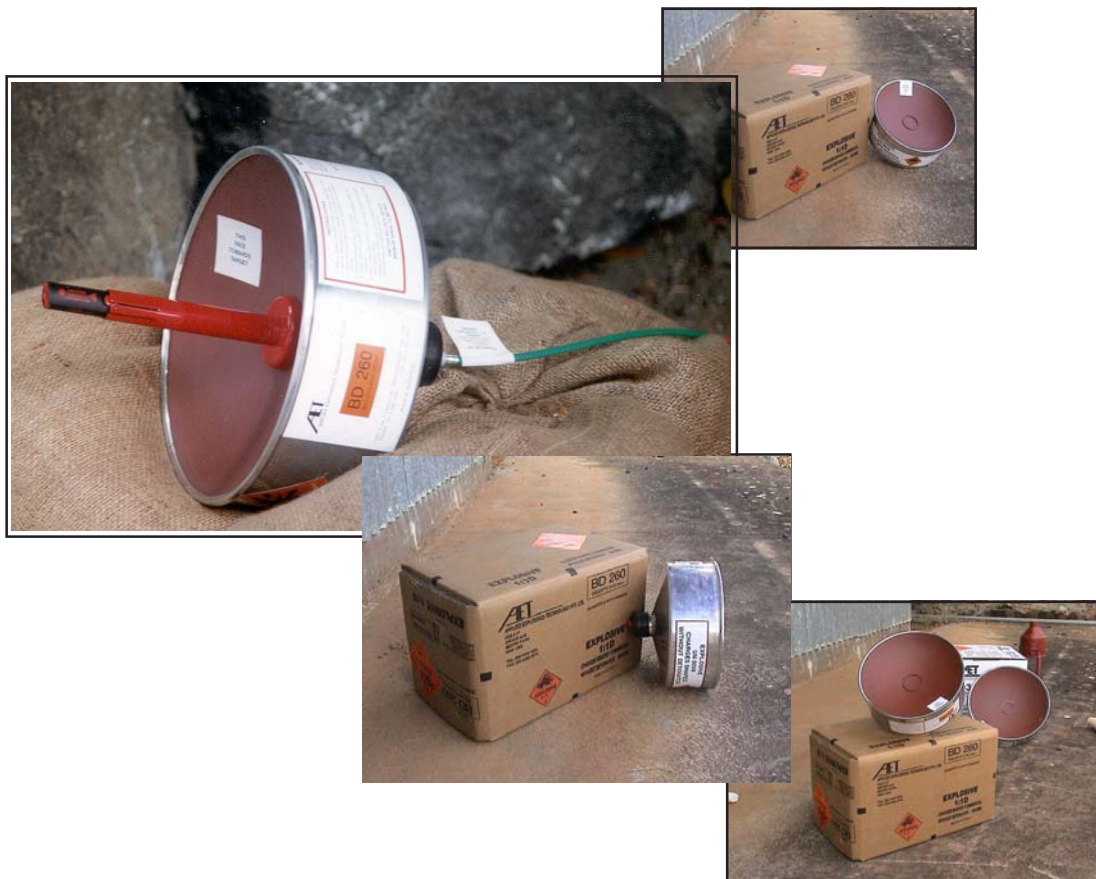
## STORAGE

- BD 260 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059

## DISCLAIMER

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# Ballistic Disc 318 [BD 318]

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## DESCRIPTION

Ballistic Disc 318 (BD318) provides a safe and effective way of clearing hang ups and pillars in draw points or stopes remotely.

BD 318 comprises 11.5 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 318mm diameter steel disc.

When detonated, the BD 318 produces a very large steel slug that is propelled at high velocity in the direction aimed.

The slug impacts with approx 13 - 15mj energy that is accurate to at least 60 metres. A free-fired BD 318 could result in the slug traveling more than 5 kilometres.

A Twenty-six gram PETN/WAX pellet provides a cap sensitive booster. A detonating cord assembly is provided for safe and convenient attachment of users preferred initiation system.

## SAFETY

- When the BD 318 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosive produces a considerable and extensive air blast.
- If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards, the following precautionary measures should be taken.
- Transport the BD 318 in the original packaging. Do not transport with detonators.
- Leave any doors, shafts open to permit dissipation of the air shockwave.
- When setting the BD 318 make sure it is in a stable position. If the charge is moved after aiming the slug will be misdirected with potentially disastrous results.
- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.
- Ensure the Detonating Cord Assembly is correctly inserted in the charge. An incorrectly primed charge will result in a malformed aerodynamically unstable slug that will travel in an unpredictable direction.
- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet problems and damage to non-target areas.

- After aiming, make sure the aiming device is removed and there are no obstructions along the aim line between the disc and the target rock or area.
- Clear the area before firing making sure personnel will not be exposed to the air blast.
- Toxic fumes are generated on detonation of the BD 318.
- Allow sufficient time for fumes to disperse before entering the blast area.

BD 318 contains 11.5 kilograms of RDX/TNT composition that generates a hot long lasting flash / fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions, ie; wet-downs, inert dust bag placement etc.

## RECOMMENDATIONS FOR USE

1. Remove Detonating Cord Assembly protective foam tube and unpack.
2. The Detonating Cord Assembly comprises of a length of UEE 20g/m detonating cord with an aluminium sleeve crimped over one end. This aluminium sleeve is not a detonator. Treat UEE 20g/m as per manufacturer instructions.
3. Mount the BD 318 in sandbags or other suitable cradle with the steel concave disc pointed at the intended target rock.
4. Ensure there is a direct line of sight from the position of the BD318 to the intended target rock.
5. Remove red plastic end cap from rear plastic housing on BD318. Make sure plastic housing remains free from dirt and grit.
6. Insert aluminium sleeve carefully into the rear plastic housing, ensuring that when fully seated only the crimp on the aluminium sleeve is visible. Do not tamper with the plastic over-cap or abuse in any way.
7. Fix the Detonating Cord Assembly to electric or non-electric initiating system.
8. Attach Laser Aiming Device (recommended), or alternate sighting mechanism.
9. Sight in the BD318 making sure there is no obstruction at all in the path of the ballistic projectile. The resulting slug will strike where aimed.
10. Removing the aiming device without disturbing the position of the BD318.
11. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

# Ballistic Disc 318 [BD 318]

## TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	318mm
Net Explosive Weight	11.5kg
Gross Weight	18.5kg
PROPERTIES	
Main Explosive	RDX/TNT
Impact Energy	13 - 15mj
Accuracy	60 metres

## PACKAGING

- BD 318 is packaged in a fibreboard box with dimensions of 315mm high and 335mm square.
- There is one charge unit per box.
- Gross box weight is approx 19.5kg.

## STORAGE

- BD 318 has a minimum shelf life of 5 years in good storage conditions.
- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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# Ballistic Disc 514 [BD 514]

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## DESCRIPTION

Ballistic Disc 514mm (BD 514) provides a safe and effective way of clearing hang-ups and pillars in draw points or stopes remotely.

BD 514 comprises 39.5 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 514mm diameter steel disc.

When detonated, the BD 514 produces a very large steel slug that is propelled at high velocity in the direction aimed. The slug impacts with approx 50MJ to 60mj energy and is accurate to at least 60 metres.

A free fired BD 514 could result in the slug traveling more than 5 kilometers.

An included booster-well will accommodate an 'ANZOMEX' Power Plus booster or equivalent (recommended, but not provided with BD 514).

## SAFETY

When the BD 514 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosives produces a considerable and extensive air blast. If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards the following precautionary measures should be taken.

- Transport the BD 514 in the original packaging.
- Do not transport with detonators.
- Leave any doors/shafts open to permit dissipation of the air shock wave.
- When setting the BD 514 make sure it is in a stable position. If the charge is moved after aiming, the slug will be misdirected with potentially disastrous results.
- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.
- Ensure the booster is correctly inserted in the charge. An incorrectly primed charge will result in a malformed, aerodynamically unstable slug that will travel in an unpredictable direction.
- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet problems and damage to non target areas.

- After aiming, make sure the aiming device is removed and there are no obstructions along the aim line between the disc and the target rock or area.
- Clear the area before firing making sure personnel will not be exposed to the air blast.
- Toxic fumes are generated on detonation of the BD 514.
- Allow sufficient time for fumes to disperse before entering the blast area.

BD 514 contains 39.5 kilograms of RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions, ie wetdowns, inert dust bag placement etc.

## RECOMMENDATIONS FOR USE, SET-UP PROCEDURE

Carrying straps/net are provided as a means to extract and carry the BD 514 from its container to the blast area.

1. Mount the stand off in sandbags or other suitable cradle with the steel concave disc pointed at the intended target rock.
2. Ensure there is a direct line of sight from the position of the BD 514 to the intended targeted rock.
3. Remove red plastic end cap from the rear of the BD 514. Make sure the booster-well remains free from dirt and grit.
4. Insert an ORICA 'Anzomex' Power Plus P booster (or equivalent) complete with a suitable strength detonating cord tail (not provided with BD 514) carefully into the booster well and secure.
5. Attach Laser Aiming Device (recommended), or alternate sighting mechanism.
6. Sight in the BD 514 making sure there is no obstruction at all in the path of the ballistic projectile. The resulting slug will strike where aimed.
7. Fix the detonating cord assembly to electric or non-electric initiating system.
8. Remove the aiming device without disturbing the position of the BD 514.
9. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

# Ballistic Disc 514 [BD 514]

## TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	514mm
Net Explosive Weight	39.5kg
Gross Weight	74.5kg
PROPERTIES	
Explosive Fill	RDX/TNT
Impact Energy	50 - 60mj
Accuracy	60 metres

## PACKAGING

- BD 514 is packed in a wooden case 416mm high x 557mm wide and 557mm long
- Gross case weight is 90kg

## STORAGE

- BD 514 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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## DESCRIPTION

Hemispherical Shaped Charge 300mm (HSC 300) provides a rapid and effective way of explosively generating a bore-hole, or clearing draw points where drill/blast or bombing is ineffective.

HSC 300 comprises 14.2 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 300mm diameter steel hemisphere.

A 26G PETN/WAX pellet provides a cap sensitive booster. A Detonating Cord Assembly is provided for safe and convenient attachment of users preferred initiation system.

When detonated, the HSC 300 produces a penetrating jet and large steel slug propelled at high velocity in the direction aimed. Fractures and penetration in rock due to jet and blast are caused by compression, tension and shear failure.

Optimum penetration of the HSC 300 is achieved by providing a stand-off distance of 1200mm to 1800mm between the charge and the obstacle.

Stand off legs, probe and collar can be provided as an optional accessory.

HSC300 is intended as a fixed stand off charge and should not be used as a remote clearing device.

A free fired HSC300 could result in the slug travelling more than 1 kilometre in an unpredictable manner.

## SAFETY

When the HSC 300 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the jet and slug, the high detonation velocity of the explosive produces a considerable and extensive airblast. If incorrectly set the slug can ricochet. Detonation of the charge generates toxic fumes.

As safeguards to these and other potential hazards, the following precautionary measures should be taken.

- Transport HSC300 in the original packaging.
- Do not transport with detonators.
- Leave any door/shafts open to permit dissipation of the air shock wave.

When setting the HSC300 make sure it is in a stable position. If the charge is moved after setting, the jet and slug will be misdirected with potentially disastrous results.

- Ensure the Detonating cord Assembly is correctly

inserted in the charge. An incorrectly primed charge will result in a malformed, unstable slug.

- Take care in setting the charge. Careless setting may result in high velocity ricochet problems and damage to non target areas.
- Make sure there are no obstructions within the stand off offset.
- Clear the area before firing, making sure personnel will not be exposed to air blast.
- Toxic fumes are generated on detonation of the HSC 300. Allow sufficient time for fumes to disperse before entering the blast area.

HSC 300 contains 14.2 kilograms of RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions ie; wetdowns, inert dust bag placement etc.

## RECOMMENDATIONS FOR USE, SET-UP PROCEDURE

1. Remove Detonating Cord Assembly from protective foam tube and unpack.
2. The Detonating Cord Assembly comprises of a length of UEE 20g/m detonating cord with an aluminium sleeve crimped over one end. This aluminium sleeve is not a detonator. Treat UEE 20g/m as per manufacturers instructions.
3. Fix HSC 300 stand off collar, legs and probe or alternate stand off fittings and set the charge at stand off distance from the target rock. Ensure there are no obstructions between the device and the target rock.
4. Remove red plastic end cap from rear plastic housing on HSC 300. Make sure plastic housing remains free from dirt and grit.
5. Insert aluminium sleeve carefully into the rear plastic housing, ensuring that when fully seated only the crimp on the aluminium sleeve is visible. Do not tamper with the plastic over cap or abuse in any way.
6. Fix the detonating Cord Assembly to electric or non-electric initiating system.
7. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorized safety and blasting procedures prior to firing.

## TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	300mm
Net Explosive Weight	14.2kg
Gross Weight	23.0kg
PROPERTIES	
Main Explosive	RDX/TNT
Stand off distance	1.2 to 1.8M
Penetration depending on target density	600mm to 2400mm

## PACKAGING

HSC300 is packaged in a plywood box with dimensions of

- 410mm high x 360mm square.
- There is one charge per box unit.
- Gross weight per unit packed is 28.5kg.

## STORAGE

- HSC300 has a minimum shelf life of 5 years in good storage conditions.
- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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# Hemispherical Shaped Charge 53mm [HSC 53]

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## DESCRIPTION

Hemispherical Shaped Charge 53mm (HSC 53) provides a fast and effective way of unblocking blast holes and clearing steel reinforcing within drill holes.

HSC 53 comprises 110 grams RDX/TNT composition cast into a spun aluminium casing, capped with a 53mm diameter steel hemisphere. A 10gram PE4 increment provides a cap sensitive booster

When detonated the HSC 53 produces a penetrating jet and broad form slug into the presented obstacle. The penetrating jet, traveling at approx 5000 mt/sec induces the contact area of the obstacle to behave in a hydrodynamic fashion. The adjoining slug delivers kinetic shock energy.

Optimum jet penetration of the HSC 53 is achieved by providing a stand off distance between the device and the obstacle.

Stand-off units can be provided as an optional accessory.

## SAFETY

- Transport HSC 53 in the original packaging with the steel hemispheres opposed
- Do not transport with detonators.
- When setting the HSC 53 make sure it is in a stable position. If the charge is moved after positioning, the slug will be misdirected with potential damage to non-target areas.
- Clear the area before firing, making sure personnel will not be exposed to the blast.
- Toxic fumes are generated on detonation of the HSC 53.
- Allow time for fumes to disperse before entering the blast area.
- HSC 53 contains RDX/TNT that generates a hot flash/fireball on detonation. Be aware of Dust Explosion Hazard and take adequate precautions

## RECOMMENDATIONS FOR USE

1. Fix stand-off collar (optional accessory) to the hemispherical charge base. Remove red cap from the plastic detonator housing, ensuring the interior of the detonator housing remains free of dirt and grit
2. Do not tamper with the detonator housing or over-cap, or abuse in any way.
3. HSC 53 can be initiated by signal tube, electric or plain detonators (no: 8 strength minimum) or min. 10g/m detonating cord.
4. When rock popping, position and secure the HSC 53 with correct standoff. The jet will strike where aimed. Fix detonating system carefully into the detonator housing.
5. When clearing drill holes - lower the charge down the drill hole by suitable means until standoff unit meets the obstruction.
6. Ensure there are no obstructions between the device and the target.
7. Follow the authorised safety and blasting procedures prior to firing.

## PACKAGING

- Packaging consists of an outer cardboard box and sixteen inner cardboard tubes. The cardboard box has dimensions of 260mm x 260mm x 388mm.
- There are 60 charges per box, packed four to an inner cardboard tube.

## STORAGE

- HSC 53 has a minimum shelf life of 5 years in good storage conditions.
- These units should be stored in a cool, dry magazine licensed for 1.1D explosives and oldest charges should be used first. UN 0059

# Hemispherical Shaped Charge 53mm [HSC 53]

## TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	64mm
Net Explosive Weight	119.0gms
Gross Weight	204.0gms
PROPERTIES	
Main Explosive	RDX/TNT
Stand-off distance	approx 160mm
Penetration depending on target density	120mm to 300mm

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Optimum stand-off distance approximately 160mm

# FC 115 [115mm Focal Charge]

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## DESCRIPTION

FC115MM Focal Charge provides a safe and effective secondary rock breakage method for use in underground metaliferrous mines.

FC115 comprises of approximately 1kg of high explosive cast into a plastic container defining a steep angle focal cavity. The explosive is Composition B. (RDX-TNT 60-40), with knotted detonating cord cast into and protruding from the apex of the charge.

When detonated, the FC115 focuses a proportion of the detonation energy in the focal cavity axis, thus directing a stream of hot, shocked gasses into the rock target that the charge has been placed in contact with. This results in efficient breakage of the target without the need for mudcapping or drill and popping.

## SAFETY

- When the FC 115 is used, appropriate measures must be taken to protect persons and property in all nearby areas.
- Detonation of the charge produces severe airblast and toxic fumes. As safeguards to these and other potential hazards, the following safety measures should be taken when using the FC 115.
- Transport the FC 115 units in original packaging until use is intended.
- Do not transport or store with detonators.
- Ensure FC 115 units are in a stable position when sited.
- Ensure that proper detonating cord connections are made (either reef knot, clove hitch or secure taping) when tying the charge in with detonating cord. The tie in cord must be 5g/m or greater loading.
- Follow manufacturers instructions for detonating cord connections.

- Alternatively, ensure that connection of detonators to the detonating cord tail of the FC115 is done according to manufacturers instructions.
- Clear area of personnel before firing.
- Allow sufficient time for fumes to dissipate or be extracted by mine ventilation system before re-entering the blast area.
- The FC115 detonates with a hot, long lasting flash/fireball.
- Be aware of dust explosion hazard and take adequate precautions.

## RECOMMENDATIONS FOR USE

1. Untape the 300mm length of detonating cord from side of FC115 unit.
2. Secure the FC115 unit against the target as firmly as possible (base towards target).
3. Attach detonating cord or other means of initiation to detonation cord tail according to manufacturers instructions (see above "safety").
4. If intending to fire multiple FC 115s in same proximity, tie in with detonating cord of minimum 5g/m ensuring clove hitch or tape connections are as per detonating cord manufacturer's instructions.
5. Clear blast site of personnel and unnecessary equipment; withdraw to a safe area.
6. Follow authorised safety and blasting procedures before and after blasting.

# FC 115 [115mm Focal Charge]

## TECHNICAL PROPERTIES

Diameter (base)	115mm
Diameter (apex)	55mm
Height	170mm
NEQ	~1kg
Gross Mass	~1.15kg
Explosive Fill	RDX/TNT 60/40
Detonation Pressure	260 KBar
VOD	7800 m/sec

## PACKAGING & STORAGE

No. units/case	12
Gross Mass/Case	16kg
NEQ/Case	12kg
Case Dimensions (External)	260x260x420mm
Approval No.	20094
Recommended Shelf Life	3 years
Detonation Pressure	260 KBar
VOD	7800 m/sec

## DISCLAIMER

\* All information contained in this Data sheet is as accurate and as up-to-date as possible. Since Applied Explosives Technology cannot anticipate or control the conditions under which this information and its products may be used, Applied Explosives Technology will not be responsible for damages of any nature resulting from the use of, or the reliance upon the information. No expressed or implied warranties are given other than those implied mandatorily by Commonwealth, State or Territory legislation.



# FC 160 [160mm Focal Charge]

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## DESCRIPTION

FC160MM Focal Charge provides a safe and effective secondary rock breakage method for use in underground metaliferrous mines.

FC160 comprises of approximately 2.6kg of high explosive cast into a plastic container defining a steep angle focal cavity. The explosive is Composition B. (RDX-TNT 60-40), with knotted detonating cord cast into and protruding from the apex of the charge.

When detonated, the FC160 focuses a proportion of the detonation energy in the focal cavity axis, thus directing a stream of hot, shocked gasses into the rock target that the charge has been placed in contact with. This results in efficient breakage of the target without the need for mudcapping or drill and popping.

## SAFETY

- When the FC160 is used, appropriate measures must be taken to protect persons and property in all nearby areas.
- Detonation of the charge produces severe airblast and toxic fumes. As safeguards to these and other potential hazards, the following safety measures should be taken when using the FC160.
- Transport the FC160 units in original packaging until use is intended.
- Do not transport or store with detonators.
- Ensure FC160 units are in a stable position when sited.
- Ensure that proper detonating cord connections are made (either reef knot, clove hitch or secure taping) when tying the charge in with detonating cord. The tie in cord must be 5g/m or greater loading.
- Follow manufacturers instructions for detonating cord connections.

- Alternatively, ensure that connection of detonators to the detonating cord tail of the FC160 is done according to manufacturers instructions.
- Clear area of personnel before firing.
- Allow sufficient time for fumes to dissipate or be extracted by mine ventilation system before re-entering the blast area.
- The FC160 detonates with a hot, long lasting flash/fireball.
- Be aware of dust explosion hazard and take adequate precautions.

## RECOMMENDATIONS FOR USE

1. Untape the 300mm length of detonating cord from side of FC160 unit.
2. Secure the FC160 unit against the target as firmly as possible (base towards target).
3. Attach detonating cord or other means of initiation to detonation cord tail according to manufacturers instructions (see above "safety").
4. If intending to fire multiple FC160s in same proximity, tie in with detonating cord of minimum 5g/m ensuring clove hitch or tape connections are as per detonating cord manufacturer's instructions.
5. Clear blast site of personnel and unnecessary equipment; withdraw to a safe area.
6. Follow authorised safety and blasting procedures before and after blasting.

# FC 160 [160mm Focal Charge]

## TECHNICAL PROPERTIES

Diameter (base)	160mm
Diameter (apex)	46mm
Height	222mm
NEQ	~2.6 kg
Gross Mass	~2.75 kg
Explosive Fill	RDX/TNT 60/40
Detonation Pressure	260 KBar
VOD	7800 m/sec

## PACKAGING & STORAGE

No. units/case	4
Gross Mass/Case	16kg
NEQ/Case	10.5kg
Case Dimensions (External)	362x355x285mm (dia)
Approval No.	4913
Recommended Shelf Life	3 years

## DISCLAIMER

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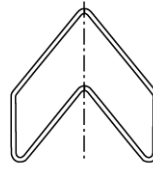
## CROSS SECTION CHARGE, CUTTING, LINEAR



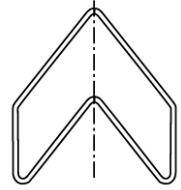
### CCL IS AVAILABLE EITHER AS:

- Empty casing for field filling with plastic explosive
- Filled with cast RDX/TNT (Comp B) with 26g PETN/  
Wax booster pellets supplied separately

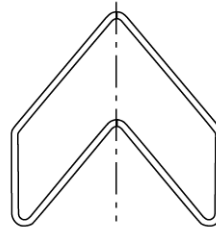
- Numeric nomenclature refers to grams/meter of RDX/TNT
- MJP = minimum jet penetration 1020 mild steel
- Length specified by customer maximum 1200mm
- Available in copper or aluminium



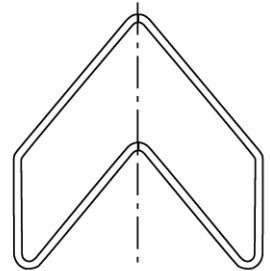
CCL 250  
(MJP 20)



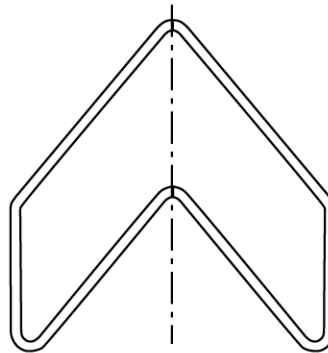
CCL 300  
(MJP 25)



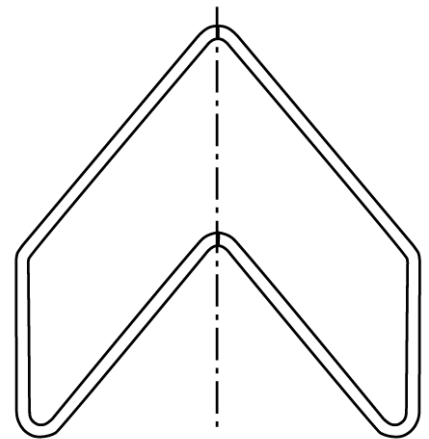
CCL 500  
(MJP 35)



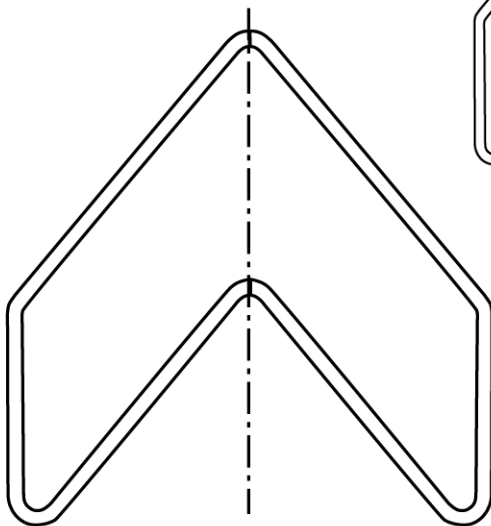
CCL 850  
(MJP 40)



CCL 1200  
(MJP 60)



CCL 2000  
(MJP 90)



CCL 2700  
(MJP 100)



CCL ISOMETRIC VIEW

Detailed Specifications available on request

## HAYRICK PARTS LIST

100. Hayrick Casing
101. Primer Well (part of Hayrick Casing)
200. End Plate
300. Liner
400. Leg Bracket
500. Leg Assembly

